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Introduction

This Quick Reference Guide pulls together related information on:

- the **screen layouts** supported on SIP endpoints by the Cisco Meeting Server. It also covers the layouts supported on Cisco Meeting App and Cisco Meeting Management. It does not cover layouts supported on Lync or Skype for Business clients or other third party products.

- setting the **importance levels on participant**s to determine who will be displayed.

- **pane sequence for different screen layouts.**

- the **pane placement** feature to control which participant appears in which pane on an endpoint (from version 2.4). Examples are provided on using Pane Placement for different screen layouts both on single screen endpoints and multiple screen endpoints.

- setting the **number of video streams from remote Call Bridges** in clustered deployments.

**Note:** Pane placement on the Meeting Server applies conference wide, and is not configurable per participant as on the Cisco MCU.
Layouts on SIP endpoints

Overview
Screen layouts for SIP endpoints are selected either via the Meeting Server API, or by using DTMF tones if they are configured through the API, or through ActiveControl on endpoints supporting the protocol. Layouts can also be selected using Cisco Meeting App and Cisco Meeting Management.

Note: You can only select the layout of the screen you are using through Cisco Meeting App or Active Control. Using the Meeting Server API or Cisco Meeting Management you can select the screen layout for a single participant or for all participants in a conference.

Layouts available through the Meeting Server API are listed below, with the equivalent name used in other interfaces:

- **automatic** also known as **Auto** on Cisco Meeting Management and selected endpoints,
- **allEqual** also known as **Equal** on Cisco Meeting Management and selected endpoints,
- **allEqualQuarters**
- **allEqualNinths**
- **allEqualSixteenths**
- **allEqualTwentyFifths**
- **stacked** also known as **stack** on the Meeting Server Web Admin interface, and **Prominent** on selected endpoints,
- **telepresence** also known as **Speaker Large** on the Cisco Meeting App and **Overlay** on the Meeting Server Web Admin interface, Cisco Meeting Management and selected endpoints,
- **speakerOnly** also known as full screen on the Meeting Server Web Admin interface, and **Single** on Cisco Meeting Management and selected endpoints,
- **onePlusN** also known as **Prominent** on Cisco Meeting Management,
- **onePlusFive**
- **onePlusSeven**
- **onePlusNine**

Using the API, a selected layout can be applied to these API objects:

/coSpaces
/calls
/callLegs
/callLegProfiles
Using the following parameters:

- `defaultLayout`
- `chosenLayout`
- `layout`

For details on using the API see the Cisco Meeting Server API Reference Guide.

Points to note:

- The Active speaker is indicated by a blue line below the speaker’s pane.
- From version 2.3, the number of remote video streams per remote Call Bridge in a clustered deployment can be set to 1, 4 or 9; the default is 4 (note that 9 remote video streams across distribution links between clustered Call Bridges is still a preview feature in version 2.4). See here for more information.

**Available layouts**

**automatic**

- The automatic layout is based on recent active speakers with the following rules applied:
  - Participants will be shown in "big panes" when they become the active speaker.
  - Recent active speakers will be shown in big panes, with other participants shown in a "dock" of smaller Picture in Picture (PiP) panes at the base of the screen.
  - People will move out of the "active speaker list" (and thus be "demoted" to the dock) after a period of inactivity (not speaking).
  - If there is only one other video stream to be shown then it will be shown full screen, "point to point" mode.
  - The maximum number of participants that will be visible are the 4 loudest speakers plus a maximum 8 participants in the dock (total 12 participants).

- Called **Auto** on SX, MX, DX and Room Series endpoints.
- Called **Auto** on Cisco Meeting Management.
- Displayed as a onePlusN layout on dual screen endpoints.

**allEqual**
• the layout expands from a 4 person (2 x 2) view up to a 25 person (5 x 5) view, with all participants shown at equal size.

• called "all equal" on the Web Admin interface (Configuration > Space configuration > Default layout) and "All Equal" on the Cisco Meeting App.

• called Equal on SX, MX, DX and Room Series endpoints. Accessible using Touch 10 or a remote control.

• called Equal on Cisco Meeting Management.

• if there is only one other video stream to be shown then it will be shown full screen, "point to point" mode.

• alternatively, a specific allEqual layout can be specified from:
  • allEqualQuarters
  • allEqualNinths
  • all EqualSixteenths
  • allEqualTwentyFifths

**Note:** This layout is called "all equal quarters" etc. on the Web Admin interface (Configuration > Space configuration > Default layout) and "All Equal" on the Cisco Meeting App.

**Note:** For dual screen endpoints there is a limit of allEqualNinths. If allEqualSixteenths or allEqualTwentyFifths are selected then the selection is ignored and the layout on the endpoint will revert to allEqualNinths.
stacked

- this layout shows a maximum of 6 PiPs below the main speaker, even if there are more than 7 other callers in the meeting. The PiPs are separate to the main speaker pane.
- if there is only one other video stream to be shown then it will be shown full screen, " point to point" mode.
- called "stack" on the Web Admin interface (Configuration > Space configuration > Default layout).
- called Prominent on SX, MX, DX and Room Series endpoints. Accessible using Touch 10 or a remote control.

**Note:** This layout is not available on the Cisco Meeting App or Cisco Meeting Management.

telepresence

- this layout shows a maximum of 6 PiPs below the main speaker, even if there are more than 7 other callers in the meeting. The PiPs are overlaid at the bottom of the main speaker pane.
- if there is only one other video stream to be shown then it will be shown full screen, " point to point" mode.
- called "overlay" on the Web Admin interface (Configuration > Space configuration > Default layout).
- called "Speaker Large" on the Cisco Meeting App.
- called Overlay on SX, MX, DX and Room Series endpoints. Accessible using Touch 10 or a remote control.
- called Overlay on Cisco Meeting Management.
speakerOnly

- only the single loudest speaker is visible.
- called "full screen" on the Web Admin interface (Configuration > Space configuration > Default layout).
- called "Speaker Only" on the Cisco Meeting App.
- called Single on Cisco Meeting Management.
- called Single on SX, MX, DX and Room Series endpoints. Accessible using Touch 10 or a remote control.

onePlusN

- automatically changes the screen layout on SIP endpoints as participants join or leave a meeting. For example from onePlus5 to onePlus7 to onePlus9.
- if there is only one other video stream to be shown then it will be shown full screen, "point to point" mode.
- called Prominent on Cisco Meeting Management.
- alternatively, a specific onePlusN layout can be specified from:
  - onePlusFive
  - onePlusSeven
  - onePlusNine

**Note:** This layout is called "one plus five" etc. on the Web Admin interface (Configuration > Space configuration > Default layout), and is not available on the Cisco Meeting App.
Note: For dual screen endpoints, selecting onePlusN will display either 1+2x2, 1+3x3 or 1+4x4 layout depending on the number of participants in the conference and the setting for panePlacementHighestImportance.

Note: this layout cannot be selected using Touch 10 or a remote control.

Using DTMF to select a layout

A layout on the SIP endpoint can be selected by DTMF tones if configured through the API. The layouts scroll through in order: allEqual > stacked > telepresence > speaker only > onePlusN > defaultLayout > allEqual > ......

- If the defaultLayout is set to one of these 5 layouts then only these 5 layouts will be in the cycle. For example: if defaultLayout=allEqual then the order is allEqual > stacked > telepresence > speakerOnly > onePlusN > allEqual > ......
- If defaultLayout is set to a different layout to the 5, then the sequence will include the layout set for defaultLayout. For example: if defaultLayout=allEqualNinths then the order is allEqual > stacked > telepresence > speaker only > onePlusN > allEqualNinths > allEqual ......

Figure 1: Using DTMF to scroll through layouts

For details on configuring DTMF, see this FAQ.

Using ActiveControl to select a layout

The Meeting Server automatically supports ActiveControl and will subscribe to the XCCP layout capabilities of an ActiveControl enabled SIP endpoint.
Importance levels of participants

You can use the importance level of participants in a conference to determine who will be displayed on the screen. The importance of participants can be set and reset using either:

- the Meeting Server API (from version 2.2),
- Cisco Meeting Management (from version 1.1),
- Cisco Meeting App (from version 1.10).

It is advisable to only use one method to set or reset the importance of participants. As with SIP endpoints, the Cisco Meeting App will take into consideration the importance set by the Meeting Server API and by Cisco Meeting Management. Setting the importance of participants within Cisco Meeting App will also change the layouts for SIP endpoints. Using both the Meeting Server API and Cisco Meeting Management to set and reset importance, may cause unwanted behaviors and trigger warnings in Cisco Meeting Management.

For information on using Cisco Meeting App to set importance, see the Cisco Meeting App 1.10 User Guide. For information on using Cisco Meeting Management to set importance, see the Cisco Meeting Management 1.1 User Guide for Video Operators. The remainder of this section discusses the impact of setting importance using the Meeting Server API.

Setting importance using the Meeting Server API

Multiple participants can be assigned different importance levels, the participant with the highest importance level will be treated as if they are the loudest speaker. Maximum value for the importance level is 2,147,483,647.

Layouts are built using a list of the assigned importance levels of participants, with highest importance at the top of the list, and within each importance level by the order in which they were most recently the loudest speaker. Layouts are then created by filling panes using this list, with the largest panes filled first. After all panes are filled, panes of equal size may be swapped to minimize people moving within the layout. The sequence that panes are filled is shown here.

For telepresence, stacked, speakerOnly and onePlusN screen layouts, the participant with the highest importance level will be shown in the main pane, rather than the active speaker; if there are multiple participants with the same highest importance level, then one of these will be shown in the main pane, which one being determined by who was the most recent active speaker. The Active speaker indication of a blue line below the speaker’s video pane remains unaffected.

For the allEqual family of layouts, the participant with the highest importance level will be shown in one of the allEqual panes, but not necessarily pane #1. If there are multiple important participants then up to 25 will be displayed in the allEqual panes, any remaining places will be taken by participants without importance set.
Initially, all participants have an unset importance level, any set importance level is higher than the unset state. An importance level of 1 is higher than 0, but lower than 2, and all these levels are higher than unset.

Note: Although importance level 0 and importance unset currently behave in a similar manner, they are not equivalent, and their behaviors may differ in the future.

Using importance

1. Remove any configured importance settings for all participants in the conference, so all participants are in the unset state.
   
   PUT to API object /calls/<call id>/participants/* with request parameter importance unset (present, but without a value)

2. Add the important person to the conference with the importance level set.
   
   POST to API object /calls/<call id>/participants with request parameter importance set, for example to 1.

3. To make a participant important if they are already in a conference:
   
   PUT to API object /participants/<participants id> with request parameter importance set, for example to 1

Alternatively, an importance value can be assigned to an Access Method for a specific coSpace (this is new in version 2.4):

- create a new accessMethod for the specified coSpace, POST to /coSpaces/<coSpace id>/accessMethods the request parameter importance set to the chosen value, or
- update an existing Access Method for the coSpace, PUT to /coSpaces/<coSpace id>/accessMethods/<access method id> the request parameter importance set to the chosen value.
Pane sequence

The pane position in a screen layout determines the sequence that panes are filled when participants have an assigned importance level. This section shows the pane position in different screen layouts for single screen, dual screen and triple screen endpoints.

Note: The numbers indicate the pane position or order of being filled, not an importance value.

Note: You may notice that this pane sequencing is different to previous versions.

Figure 2: Pane placement on screen layouts for single screen endpoints

![Pane sequence diagram](image)

- **allEqualQuarters**
- **onePlus5**
- **Stacked screen layout**
- **allEqualNinths**
- **onePlus7**
- **Telepresence screen layout**
- **allEqualSixteenths**
- **onePlus9**
- **allEqualTwentyFifths**
Figure 3: Pane placement on screen layouts for dual screen endpoints

Note: For dual screen endpoints, selecting onePlusN will display either 1+2x2, 1+3x3 or 1+4x4 layout depending on the number of participants in the conference and the setting for panePlacementHighestImportance. Automatic layout is displayed as onePlusN on dual screen endpoints.
Figure 4: Pane placement on telepresence screen layout for triple screen endpoints
Pane placement

From Meeting Server version 2.4, you can use the Meeting Server API pane placement feature to control which participant appears in which pane on an endpoint; the screen layout assigned to the endpoint will affect which panes are shown. The pane position in the layout determines the order of being filled by the video of the important participants. Figure 5 shows the pane positions on an endpoint with the screen layout set to allEqualQuarters. The numbers indicate the pane position or order of being filled, not an importance value. The pane labelled #1 is filled first, followed by the pane labelled #2 etc. For the sequence of filling panes using other screen layouts, click here.

Figure 5: Pane placement using allEqualQuarters screen layout

<table>
<thead>
<tr>
<th>#1</th>
<th>#2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>#3</td>
<td>#4</td>
</tr>
</tbody>
</table>

Pane placement is controlled through the API using:

- the `panePlacementHighestImportance` parameter set on a coSpace to determine how many panes will be reserved for pane placement,
- the `importance` value assigned to participant(s) or Access Method for a specific coSpace, and
- the screen layout selected for the endpoint.

In the example shown in Figure 5, if `panePlacementHighestImportance` is set to 4, then:

- pane #1 will be reserved for a participant with importance set to 4
- pane #2 will be reserved for a participant with importance set to 3
- pane #3 will be reserved for a participant with importance set to 2
- pane #4 will be reserved for a participant with importance set to 1

For more details see Using pane placement.

**Note:** Pane placement on the Meeting Server applies conference wide, and is not configurable per participant as on the Cisco MCU.

**Note:** The way a participant joins a conference does not affect pane placement, for instance there is no affect whether a participant dials in to join a conference or is dialed out to.
Note: The pane placement feature is not currently supported by the Recorder or Streamer. Neither is the feature currently supported on Cisco Meeting Management or Cisco Meeting App or using DTMF on a SIP endpoint. If pane placement is selected through the Meeting Server API, then the ability to set importance is disabled in Cisco Meeting Management for meetings where pane placement is in use. Cisco Meeting App does not display blank panes.

Similarities and differences between assigning importance and pane placement

Pane placement is configured on a per-coSpace basis; if set, any conference started [instantiated] from that coSpace will have pane placement active.

The effect of Importance is determined by how it is applied:

- if set by applying a PUT method on API object /participants/<participant id>, the Importance value will only last for the duration of the participants’ active connection to the conference
- if set by applying a POST method on API object /calls/<call id>/participant, the Importance value will only last for the duration of the participants’ active connection to the conference
- if set by applying a POST or PUT method on API object /coSpaces/<coSpace id>/accessMethod, the Importance value will last for the duration of the coSpace, so the same Importance value will take effect if a participant leaves a conference then rejoins using the same accessMethod.

Pane placement will display a blank pane if the participant with the assigned importance has not yet joined the conference (either by dialing in or being dialed out to). This has the effect of fixing the position of an important participant on the display, rather than move around as other important participants join and leave the conference, which will occur if importance is used without pane placement.
Using pane placement

Pane placement works only on a per conference basis. To use pane placement:

1. set a value for parameter `panePlacementHighestImportance` for the space, this defines the highest importance level to be used in the space:
   - for an existing specific space. PUT to `/coSpaces/<coSpace_id>` the request parameter `panePlacementHighestImportance` set to the chosen value,
   - to create a new space with pane placement set, POST to `/coSpaces` with the request parameter `panePlacementHighestImportance` set to the chosen value.

2. assign importance values to the important participants that will connect to the meeting, setting the importance value for a participant has been available since version 2.2:
   - create a new participant with the assigned importance for the specified call, POST to `/calls/<call_id>/participants` with the request parameter `importance` set to the chosen value, or
   - assign an importance to a specified participant in the conference, PUT to `/participants/<participant_id>` with the request parameter `importance` set to the chosen value.

Alternatively, an importance value can be assigned to an Access Method for a specific coSpace (this is new in version 2.4):

- create a new `accessMethod` for the specified coSpace, POST to `/coSpaces/<coSpace_id>/accessMethods` the request parameter `importance` set to the chosen value, or
- update an existing Access Method for the coSpace, PUT to `/coSpaces/<coSpace_id>/accessMethods/<access_method_id>` the request parameter `importance` set to the chosen value.

Once pane placement is operational, the following rules are applied:

- Number of participants shown on an endpoint will depend on the layout selected for that endpoint.
- Participants are placed based on their importance value (highest importance is placed first). A blank pane is inserted if no participants match a specific importance level, for instance because the level was not assigned, the participant has yet to join the meeting or has already left the meeting.
- Participants with a higher importance than specified in `panePlacementHighestImportance` for the space, appear “at the top of the layout”, no blank panes are added for importance values between this participant’s importance and the `panePlacementHighestImportance` value.
- If some participants have a higher importance value than the `panePlacementHighestImportance` set for the space, then the Meeting Server will start by
using those participants but any gaps between their importance and the panePlacementHighestImportance set for the space won’t be represented by a blank pane. This also occurs if an Access Method to the space is configured with a higher importance value than the panePlacementHighestImportance set for the space.

- A participant never sees themselves, and a blank pane is not shown for them on their endpoint.
- If a participant with no importance set is reached before the panes on the screen run out, the remaining layout panes will be filled with any participants not yet placed, but are in the active speaker history order (most recent speakers first). Blank panes are not added in between them and participants with assigned importance.
- If multiple participants are given the same importance value, then they are ordered according to who is the most frequent active speaker. In this mode, there is no reordering of participants to keep them in the same pane, so participants will move between panes.
- If the conference is split across several Meeting Servers, the participants that are shared across the distribution link appear in the panes according to their importance. If the participant is present, but the video stream isn’t sent over the distribution link, an empty pane is inserted. As the most important participants are shared over the distribution link, the more important (higher importance value) panes will always be filled for all participants. However, it will depend on which Meeting Server a participant is hosted on as to whether they see a participant or an empty pane. See here for more information.

Removing pane placement

To remove pane placement, leave the panePlacementHighestImportance parameter as unset (leave the parameter value as blank).

Considerations when deploying pane placement

There are a few important points to note when planning to deploy pane placement. They are:

- for clustered Meeting Server deployments, consider the number of remote video streams per remote Call Bridge that will be required, see here for more information.
- if you need a fixed pane experience, then ensure you do not assign different participants with the same importance level.

In addition, consider whether you want participants to see different layouts and whether you want participants to be able to change their screen layout.

Placing panes on single screen endpoint systems

This section explains the effect of using pane placement to control the view of participants using single screen endpoints.
Figure 6 shows the view of a participant using an endpoint with the screen layout set to allEqualQuarters. The space that the participant is connected to has `panePlacementHighestImportance` set to 4, and participants with importance of 4, 3, 2, 1 are connected to the space, the participant using the screen does not have any importance set. All other participants joining the meeting are unimportant and see the same layout as this participant.

**Figure 6: Pane placement on allEqualQuarters screen layout with importance set on participants**

<table>
<thead>
<tr>
<th>Participant with importance set to 4</th>
<th>Participant with importance set to 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant with importance set to 2</td>
<td>Participant with importance set to 1</td>
</tr>
</tbody>
</table>

where:

- `panePlacementHighestImportance` for space = 4
- importance not set for specific participant using the screen

If any of the important participants are not connected to the space then this participant will see a blank pane in place of the missing important participant, see Figure 7.

**Figure 7: Participants with importance levels of 3 and 2 missing from meeting**

| Participant with importance set to 4 | Participant with importance set to 1 |

where:

- `panePlacementHighestImportance` for space = 4
- importance not set for specific participant using this screen
- participants with importance levels of 3 and 2 missing from meeting

When the space has the `panePlacementHighestImportance` value set larger than the number of panes on an endpoint, the lesser "important" people will not be shown in the layout, see Figure 8. In this example, the participant with importance set to 1 will never be seen by "non-important" participants, even if they are the only other person connected. However in this
particular case, the "important" participants will see the participant with importance set to 1 due to the self-view not being shown in a pane.

**Figure 8: Importance level of space is greater than number of panes in screen layout**

<table>
<thead>
<tr>
<th>Participant with importance set to 5</th>
<th>Participant with importance set to 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant with importance set to 3</td>
<td>Participant with importance set to 2</td>
</tr>
</tbody>
</table>

where:

- `panePlacementHighestImportance` for space = 5
- importance not set for specific participant using this screen

If the space is set with a `panePlacementHighestImportance` value smaller than the number of panes in the layout, then a "non-important" participant who has recently been an active speaker will be shown in pane #4, see Figure 9

**Figure 9: Importance level of space is less than number of panes in screen layout**

<table>
<thead>
<tr>
<th>Participant with importance set to 3</th>
<th>Participant with importance set to 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant with importance set to 1</td>
<td>Participant with importance not set</td>
</tr>
</tbody>
</table>

where:

- `panePlacementHighestImportance` for space = 3
- importance not set for specific participant using this screen

**Note:** In this scenario, rather than the layout changing as non-important participants join the meeting, become active speakers or leave the meeting, a typical configuration would be for the important participants to always fill the view and a blank pane be used to fix their positions.

Figure 10 shows the view seen by a participant with importance set to 3 using an endpoint with the screen layout set to `allEqualQuarters`, other participants have importance levels 5,4,2,1. The space that the participant is connected to has highest importance 5.
Figure 10: Self view not shown in screen layout for participant with importance = 3

where:

- \texttt{panePlacementHighestImportance} for space = 5
- importance set for all 5 participants

\textbf{Note:} That the view of any "important" participant will not include a pane with their self-view, see Figure 10 to Figure 12

Figure 11: Screen layout seen by participant with importance set to 5

where:

- \texttt{panePlacementHighestImportance} for space = 5
- importance set for all 5 participants

Figure 12: Screen layout seen by participant with importance set to 1

where:
**Pane placement**

- `panePlacementHighestImportance` for space = 5
- importance set for all 5 participants

If a participant has a higher importance than that set for the space, the participant will be shown, but there will be no blank panes to reserve an importance above the `panePlacementHighestImportance` value. Figure 13 shows the view for a participant without an importance level set, where the `panePlacementHighestImportance` value for the space is set to 5, but there is a participant with importance set to 7 which fills the first pane. A blank pane is not reserved for a participant with an importance level of 6.

**Figure 13: View for participant without importance set**

<table>
<thead>
<tr>
<th>Participant with importance set to 7</th>
<th>Participant with importance set to 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant with importance set to 4</td>
<td>Participant with importance set to 3</td>
</tr>
</tbody>
</table>

where:

- `panePlacementHighestImportance` for space = 5
- importance set for participants with importance levels 7, 5, 4, 3

Figure 14 shows the view of the same space as Figure 13, for the participant with importance set to 4. Figure 15 shows the view of the same space for participant with importance set to 7.

**Figure 14: View for participant with importance set to 4**

<table>
<thead>
<tr>
<th>Participant with importance set to 7</th>
<th>Participant with importance set to 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant with importance set to 3</td>
<td>Participant with importance set to 2</td>
</tr>
</tbody>
</table>

where:

- `panePlacementHighestImportance` for space = 5
- importance set for participants with importance levels 7, 5, 4, 3, 2
Figure 15: View for participant with importance set to 7

where:

- `panePlacementHighestImportance` for space = 5
- importance set for participants with importance levels 7, 5, 4, 3, 2

If the participant with importance 7 leaves the meeting, then the layout changes to participant with importance 5 being in the top left, no blank pane is reserved for importance 7 or 6. For importance 5 and below, the lack of a participant at that level in the meeting will generate a blank pane, Figure 16 shows the affect of participant with importance set to 4 leaving the meeting.

Figure 16: View if participant with importance set to 4 leaves the meeting

where:

- `panePlacementHighestImportance` for space = 5
- importance set for participants with importance levels 7, 5, 4, 3, 2

For meetings where there will be one important person speaking and many participants listening and may be asking questions, simply set the importance level of the person speaking and leave the importance of all other participants as unset. The important participant will always be shown in a main pane and other participants who have recently spoken will be shown in the smaller panes, see Figure 17.
Figure 17: Main speaker only with importance set

![Diagram of participant with importance set to 1]

where:

- panePlacementHighestImportance for space = 1
- importance level only set for main speaker

If the main speaker is joined by a guest speaker and they both have the same importance level, then who ever of the two was the most recent active speaker will be shown in the main pane. This applies for telepresence, stacked, speakerOnly and onePlusN screenlayouts.

**Example of using Pane Placement**

In this example, the panePlacementHighestImportance has been set to 8 for the space, this implies that there are participants with importance of 8,7,6,5,4,3,2,1; 8 being the most important and 1 the least important of those assigned an importance level.

Participants have been assigned the following importance levels:

**Table 1: Assigned importance levels to participants**

<table>
<thead>
<tr>
<th>Participant</th>
<th>Importance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kimberley</td>
<td>8</td>
</tr>
<tr>
<td>Andy</td>
<td>7</td>
</tr>
<tr>
<td>Mark</td>
<td>6</td>
</tr>
<tr>
<td>Sally</td>
<td>4</td>
</tr>
<tr>
<td>Bob</td>
<td>3</td>
</tr>
<tr>
<td>Julie</td>
<td>1</td>
</tr>
</tbody>
</table>

There are no participants configured with importance 5 or 2.

Bob’s endpoint is configured for a 2x2 layout, and Sally and Julie’s endpoints are configured for stacked layout. Before Kimberley joins the meeting, there is nobody in the meeting with importance 8. Bob’s endpoint shows blank panes for importance 8 and 5, Sally and Julie’s endpoints show blank panes for importance 8,5 and 2. Since Sally doesn’t appear on her own endpoint, Bob appears in different panes in Sally’s view compared to Julie’s view.
When Kimberley joins the meeting, Bob’s endpoint only shows one blank pane for importance 5, Sally and Julie’s endpoints show blank panes for importance 5 and 2. Again Bob appears in different panes in Sally’s view compared to Julie’s view due to Sally not appearing on her own endpoint.
Figure 19: Pane placement when Kimberley joins the meeting

<table>
<thead>
<tr>
<th>Participant</th>
<th>Importance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kimberley</td>
<td>8</td>
</tr>
<tr>
<td>Andy</td>
<td>7</td>
</tr>
<tr>
<td>Mark</td>
<td>6</td>
</tr>
<tr>
<td>Sally</td>
<td>4</td>
</tr>
<tr>
<td>Bob</td>
<td>3</td>
</tr>
<tr>
<td>Julie</td>
<td>1</td>
</tr>
</tbody>
</table>

Bob’s view

Sally’s view

Julie’s view

Placing panes on multiple screen endpoint systems

Normally endpoint systems with multiple cameras and screens have special handling when represented in layouts, for example a triple screen endpoint will show all 3 displays, from another triple screen system. However this special treatment is not applied to pane placement scenarios, where only the display showing the active speaker is shown, regardless of the type of viewing endpoint system.

Panes on triple screen endpoint systems are placed in position order, see section Pane sequence.

The following example shows the Telepresence screen layout on a triple screen endpoint, where it is the only triple screen system in the conference. The importance of the space is set to 22, and the importance of the participants using this triple screen system is not set, see Figure 20.
Figure 20: Pane placement on triple screen system with importance not set for participants using the system

where:

- \texttt{panePlacementHighestImportance} for space = 22
- importance not set for participants using this triple screen endpoint

\textbf{Note:} the pane sequence starts with the big panes (center-left-right), then left to right for the remaining smaller panes at the bottom of the screens.

Figure 21 shows the views on the triple screen system if other triple screen endpoints join the conference with participant importance set as 21, 18, 15, 12, 9, 6, 1.

Figure 21: View on the triple screen system when other triple screen systems join the conference

where:

- \texttt{panePlacementHighestImportance} for space = 22
- importance not set for participants using this triple screen endpoint
- other triple screen endpoints are in the conference, and importance of their participanst is set at 21, 18, 15, 12, 9, 6, 1
- only one pane is shown for participants using the triple screen endpoints, and that pane will show either the left, centre or right (L, C, R) view from the triple screen system depending on where the most recent active speaker was sitting, this pane may not show the participant with the assigned importance level.

Figure 22 shows the pane placement of the conference on a single screen endpoint using the allTwentyFifths screen layout. The last 3 panes on the screen will show the most recent active speakers who have no importance set.
Figure 22: Equivalent view on single screen endpoint using allTwentyFifths screen layout

<table>
<thead>
<tr>
<th></th>
<th>22</th>
<th>21L</th>
<th>20</th>
<th>19</th>
<th>18R</th>
</tr>
</thead>
<tbody>
<tr>
<td>17</td>
<td>16</td>
<td>15C</td>
<td>14</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>12C</td>
<td>11</td>
<td>10</td>
<td>9R</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>6L</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>1R</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

where:

- `panePlacementHighestImportance` for space = 22
- only one pane is shown for participants using the triple screen endpoints, and that pane will show either the left, centre or right (L, C, R) view from the triple screen system depending on where the most recent active speaker was sitting. Participants using triple screen endpoints in conference have their importance set at 21, 18, 15, 12, 9, 6, 1.

Figure 23 shows the pane placement of the conference on a dual screen screen endpoint using the onePlusN screen layout. Note that the right screen for the triple screen endpoint being used by the participant with an importance of 1 will not be shown on the dual screen endpoint.

Figure 23: Equivalent view on dual screen endpoint using onePlusN screen layout

where:

- `panePlacementHighestImportance` for space = 22
- only one pane is shown for participants using the triple screen endpoints, and that pane will show either the left, centre or right (L, C, R) view from the triple screen system depending on where the most recent active speaker was sitting. Participants using triple screen endpoints in conference have their importance set at 21, 18, 15, 12, 9, 6, 1.
More video streams over distribution links between clustered Call Bridges (preview feature)

**Note:** This remains a beta feature.

Prior to version 2.3, video from a maximum of four remote participants could be sent over each distribution link between clustered Call Bridges. From version 2.3, the Meeting Server supports up to nine video streams over the distribution links. Participants using single, dual and three screen endpoint systems can now have a more consistent conference experience whether conferences are hosted on clustered Call Bridges or on a single Call Bridge.

To configure the maximum number of video streams sent over each distribution link between clustered Call Bridges, set the `maxPeerVideoStreams` parameter on API object `/system/configuration/cluster` to a value between 1 and 9; the parameter defaults to 4 if not set.

To support more than four video streams across a distribution link, it is recommended that the bandwidth of the link be set to greater than 2Mbps. Use the API or the Web Admin Interface to set the bandwidth. If using the API, PUT a value for the `peerLinkBitRate` parameter to the API object `/system/configuration/cluster`; the value will be the maximum media bit rate to use on distribution links between Call Bridges in the cluster. Alternatively, using the Web Admin Interface, go to **Configuration>Cluster>Call Bridge identity** and enter the **Peer link bit rate**.
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